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	U	1	Document ID	Issue Date	Pages	Title	Current OR	Current XRef	Retrieval C	I
1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	US 5486182 A	19960123	24	Polyp retrieval assembly with separable web member	606/114	600/37; 606/110		Nakao, N
2	<input type="checkbox"/>	<input type="checkbox"/>	US 6231578 B1	20010515	9	Ultrasonic snare for excising tissue	606/113	606/46	606/113	Rajhansa,
3	<input type="checkbox"/>	<input type="checkbox"/>	US 6224611 B1	20010501	9	Snare for endoscope	606/113		606/113	Ouchi, T
4	<input type="checkbox"/>	<input type="checkbox"/>	US 6193730 B1	20010227	8	Surgical extractor	606/114	606/110; 606/127; 606/128	606/110; 606/114	Beland, C
5	<input type="checkbox"/>	<input type="checkbox"/>	US 6193729 B1	20010227	15	Surgical combination apparatus having first and second instruments operated	606/113	600/564; 600/567; 606/110	606/110; 606/113	Holsinger
6	<input type="checkbox"/>	<input type="checkbox"/>	US 6589252 B2	20030708	18	Breast surgery method and apparatus	606/114			McGuckin, F.
7	<input type="checkbox"/>	<input type="checkbox"/>	US 6090115 A	20000718	9	Temporary stent system	606/113			Beyar, R
8	<input type="checkbox"/>	<input type="checkbox"/>	US 5735289 A	19980407	11	Method and apparatus for organic specimen retrieval	600/564	600/562; 606/113		Pfeffer, al.

**(12) United States Patent**  
McGuckin, Jr.**(10) Patent No:** US 6,280,450 B1  
**(45) Date of Patent:** \*Aug. 28, 2001**(54) BREAST SURGERY METHOD AND APPARATUS**  
**(75) Inventor:** James R. McGuckin, Jr., Racine, WI (US)**(73) Assignee:** Rex Medical, LP, Racine, WI (US)**(\*) Notice:** This patent issued on a continued prosecution application filed under 37 CFR 1.53(d), and is subject to the twenty year patent term provisions of 35 U.S.C. 154(a)(2).

Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

**(31) Appl. No.:** 09/122,185**(22) Filed:** Jul. 23, 1998**Related U.S. Application Data****(60) Provisional application No. 00/031,664, filed on Jul. 24, 1997.****(31) Int. Cl.:** A61B 17/34**(32) U.S. Cl.:** 606/114**(58) Field of Search:** 606/37, 39, 40, 606/108, 110, 113, 114, 130, 170, 185, 171**(56) References Cited****U.S. PATENT DOCUMENTS**

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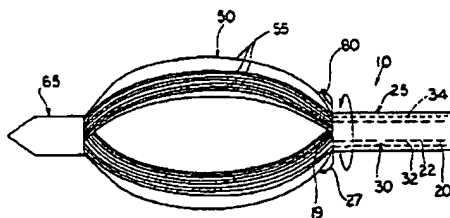
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**Primary Examiner:** Jeffrey A. Smith  
**Assistant Examiner:** Eduardo C. Robert**(57) ABSTRACT**

An apparatus and method for excision of a sub-cutaneous target tissue mass through a cutaneous incision smaller than a maximum transverse dimension of the tissue mass excised. The apparatus includes an axially elongated housing, three plunger means slidable within the housing and axially expandable member for cutting a circular swath having a radius greater than the maximum transverse dimension of the elongated housing and greater than the maximum transverse cross-sectional dimension of the target tissue mass to separate the target tissue mass from surrounding tissue. An expandable member is slidably advanceable to hug the target tissue mass for complete removal via the elongated housing.

36 Claims, 8 Drawing Sheets

**US-PAT-NO:** 6280450**DOCUMENT-IDENTIFIER:** US 6280450 B1**TITLE:** Breast surgery method and apparatus

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**Detailed Description Text - DETX (5):**

Membrane 30 preferably has an inner surface 32 coaxially parallel with shaft 20, and an outer surface 34. Inner surface 32 of membrane 30 preferably slidably facingly contacts the outside surface 22 of shaft 20. Membrane 30 is adjustably positioned in either the distal or proximate direction through the proximate end of shaft 20.

**Detailed Description Text - DETX (6):**

Tubular recovery sheath 25 preferably includes a distal pleated mouth section 27, an outer surface 45, and an inner surface 60 facingly coaxially contacting membrane 30. Inner surface 60 slidably engages outer surface 34 of membrane 30. Shaft 20 defines a rotational axis 12.

**Current US Original Classification - OCOR (1):**

606/114

## United States Patent (19)

Pfeifer et al.

(11) Patent Number: 5,735,289  
(45) Date of Patent: Apr. 7, 1998

## (54) METHOD AND APPARATUS FOR ORGANIC SPECIMEN RETRIEVAL

(76) Inventors: Herbert G. Pfeifer, 14 Chabway,  
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(21) Appl. No.: 093,486

(22) Filed: Aug. 8, 1996

(51) Int. Cl.<sup>6</sup>: A61B 19/00

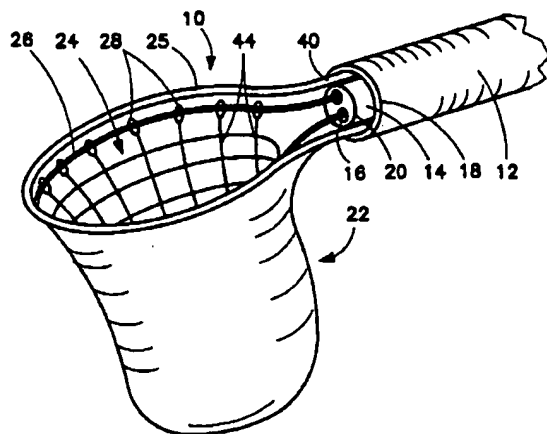
(52) U.S. Cl.: 128/781; 606/113

(53) Field of Search: 128/749, 849,  
128/250, 831; 606/110, 113, 114, 127, 128;  
604/22, 23, 27, 171, 172(56) References Cited  
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Assistant Examiner—Pamela Wingood  
Attorney, Agent, or Firm—B. Neil Sedell; Henry D.  
Coleman

## (57) ABSTRACT

An apparatus for specimen retrieval includes an outer laparoscopic pouch having an opening and a mesh enclosure having an opening. The enclosure is disposed inside the pouch and the enclosure opening is aligned with the pouch opening. The pouch includes an inflatable or resilient element for biasing the pouch opening to an open position. An element is provided for closing the pouch opening, and a component is provided for controlling the mesh enclosure to manipulate a specimen contained therein. The controlling component includes a component for retracting the enclosure or a component for relaxing the enclosure.

34 Claims, 8 Drawing Sheets



US-PAT-NO: 5735289

DOCUMENT-IDENTIFIER: US 5735289 A

TITLE: Method and apparatus for organic specimen retrieval

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## Detailed Description Text - DETX (2):

As illustrated in FIG. 1, an apparatus 10 for laparoscopic specimen retrieval includes an elongate tubular outer shaft 12 with distal end 18 and a tubular inner shaft 14 with distal end 20 disposed inside outer shaft 12. A pouch 22 is provided at distal end 18 of shaft 12. Pouch 22 is provided with a rim 25 around the opening of the pouch. Rim 25 is retractable into the space between inner shaft 14 and outer shaft 12 to effectively close off pouch 22.

Rim 25 acts to hold open pouch 22 and may be, for example, an inflatable annulus, in which case inflation of rim 25 holds open pouch 22, or rim 25 may

be formed of a resilient material, resiliently biased into an open configuration, in which case rim 25 opens upon extension thereof from shaft 12.

Pouch 22 may be provided with inflatable ribs or flexible supports in order to maintain pouch 22 in an open, deployed configuration. Rim 25 is attached to an extension 40, which extends through the space between inner shaft 14 and outer shaft 12.

## Detailed Description Text - DETX (6):

In the use of apparatus 10 in a laparoscopic surgical operation, apparatus

10 is introduced into a patient through a cannula (not illustrated).

Preferably, apparatus 10 is introduced into the patient with pouch 22 and mesh

24 retracted into outer shaft 12. Apparatus 10 can be introduced by first inserting outer shaft 12 through the cannula and subsequently introducing pouch

22, mesh 24, and inner shaft 14 into the patient through outer shaft 12.

Where extension 40 is substantially rigid, pouch 22 can be deployed by pushing extension 40 manually toward distal end 18. Otherwise, pouch 22 can be deployed by forcing pouch 22 out of distal end 18 by inner shaft 14 and/or mesh

24 and wire loop 26.

## Detailed Description Text - DETX (8):

Upon placement of specimen 100 in pouch 22, pouch 22 is closed by pulling extension 40 and by deflating, if necessary, rim 25. Rim 25 is pulled toward

and inside distal end 18 of outer shaft 12, in particular into the space between outer shaft 12 and inner shaft 14. Accordingly, organic specimen 100

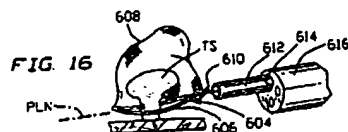
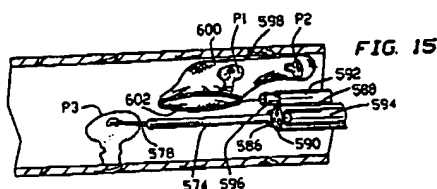
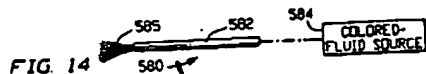
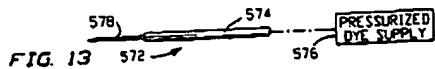
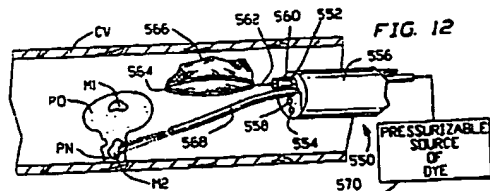
is sealed off from other bodily tissues. To ensure complete isolation of

U.S. Patent

Dec. 7, 1999

Sheet 8 of 15

5,997,547



end, tubular member 574 is provided with a needle 578 for use in injecting the dye material below the surface of polyp PO and neck PN.

#### Detailed Description Text - DETX (30):

As shown in FIG. 14, another instrument 580 utilizable with endoscope assembly 550 to mark organic tissues inside a patient comprises a tubular member 582 operatively connected at a proximal end to a pressurized or pressurizable supply 584 of a biocompatible fluidic dye material. At a distal end, tubular member 582 is provided with a brush 585 for use in applying or painting the dye material on the surface of polyp PO and neck PN.

#### Detailed Description Text - DETX (31):

Instrument 572 of FIG. 13 or instrument 580 of FIG. 14 may be inserted through biopsy channel 552 of endoscope assembly 550. Alternatively, tubular member 568 or marking instrument 572 or 580 may be inserted through an alternately expandable and collapsible biopsy channel 586 provided on a sheath 588 surrounding an endoscope insertion member 590, as illustrated in FIG. 15.

Such an endoscope sheath 588 may take the form described and illustrated in U.S. Pat. Nos. 4,646,722 and 5,025,778, the disclosures of which are hereby incorporated by reference.

#### Detailed Description Text - DETX (33):

As shown in FIG. 16, another assembly for use in severing and removing an organic tissue sample TS from inside a patient comprises a cauterization loop 604 which in an expanded configuration has a bent configuration which arcs at

606 laterally from a plane PLN in which the loop opens and closes. or curvature 606, inherent in the prestressed or spring-biased construction of loop 604, facilitates the capture of polyps by facilitating the encirclement thereof, as indicated in FIG. 16. The curved design of FIG. 16 may be used in

any of the snare embodiments described herein, as well as in prior art cauterization loops without an attached capture pocket or web. Loop 604 is provided with a capture pocket 608 and is operatively connected to an electrical energy source (not shown) via an elongate wire 610 extending longitudinally through a sheath 612 in turn extending through a biopsy channel 614 of an endoscope insertion member 616.

#### Detailed Description Text - DETX (34):

It is to be noted that colored staples may be used to mark a polyp and/or its base, the staples being applied via an endoscopic stapling instrument as disclosed in U.S. Pat. Nos. 5,015,249 and 5,049,153 and 5,156,609, the disclosures of which are hereby incorporated by reference. The staples may be applied to the base or neck of a severed polyp either before or after a cauterization procedure.

#### Detailed Description Text - DETX (37):

FIG. 17B shows the sliding of ringlets 786 and 788 in a distal direction

8, 5, 486, 182